



Setup details

Unistat® 815 & Miniplant DDPS 6 L

Temperature range: -85...250 °C
 Cooling power: 1.5 kW @ 250...-20 °C
 1.4 kW @ 40 °C
 1.2 kW @ -60 °C
 0.2 kW @ -80 °C

Heating power: 2.0 kW
 Hoses: 2x1 m; M38x1.5 (#9616)
 HTF: M90.055.03
 Reactor: 6-litre insulated jacketed glass reactor

Reactor content: 4 litre M90.055.03
 Stirrer speed: ~ 200 rpm
 Control: process

Unistat® 815

Controlling a 6-litre DDPS jacketed glass reactor

Requirement

Chemistry at cryogenic temperatures raises questions on the level of control that can be expected at low temperatures. This case study looks at the ability of a Unistat 815 to cool and control a "DDPS" 6-litre glass reactor to low temperatures.

Method

The DDPS reactor was connected to the Unistat 815 using two 1-metre long M38x1.5 insulated hoses. The HTF used was Huber's "M90.055.03", a silicon based HTF.

Results

The second and third curves demonstrate the pin point and repeatable control made possible through "TAC" control as the Unistat 815 ramps the process temperature between 20 °C and -50 °C and back then from 20 °C to -30 °C.

